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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,315	09/22/2005	Zamir Tribelsky	P-7664-US	9214

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EXAMINER	
YOO, REGINA M	

ART UNIT	PAPER NUMBER
1797	

MAIL DATE	DELIVERY MODE
08/27/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/522,315	TRIBELSKY, ZAMIR	
	Examiner	Art Unit	
	REGINA YOO	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 June 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4 and 16-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 4 and 16-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

FINAL ACTION

Response to Amendment

The amendment filed on 6/17/2010 has been received and claims 1, 4 and 16-18 are pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1, 4 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baca (20020079271) in view of Neuberger (5658148) and Schneider (3503804).

As to Claims 1 and 16, Baca ('271) discloses a method for ultraviolet (UV) liquid disinfection (see entire document, particularly Abstract, Figures 2-3, p. 2 [0016]-[0018] and [0027], p. 3 [0030], and p. 4 [0037]-[0038]), comprising:

providing a stream of liquid (211, 305) to be disinfected by UV-radiation, where the liquid includes contaminants (see p.2-p.3 [0026]-[0027] and p. 4 [0038]; where contaminants being microorganisms); and

disinfecting the stream of liquid by directing, within said stream of liquid to be disinfected, said UV-radiation such that said UV-radiation is being guided throughout said stream (see Figures 2-3) and the liquid to be disinfected to intrinsically serve as a flowing liquid wave guide for the UV-radiation (see entire document, particularly Figures 2-3, p. 2 [0027] and pp. 4-5 [0040]-[0043], particularly at the end of [00042]).

Baca ('271) does not appear to specifically teach that the liquid serves as a flowing liquid wave guide for the UV-radiation along the longitudinal trajectory of the stream using total internal reflection, or that the liquid stream has a refractive index greater than a refractive index of the surrounding of the stream of liquid.

It was known in the art at the time of invention to provide a stream of liquid which has a surrounding with lower refractive index than the liquid stream that enables the

liquid to serve as a flowing liquid wave guide for the radiation along the longitudinal trajectory of the stream using total internal reflection.

Neuberger ('148) discloses a method of delivering a liquid jet along with laser radiation in a dental application to destroy oral bacteria viruses (see Figure 5, Col. 1 lines 32-44 and 61-63 and Col. 3 lines 37-44), the method comprising:

providing a stream of liquid (via 52 to 53) (see Figure 5) wherein the liquid has a refractive index is greater than a refractive index of the surrounding (see Col. 5 lines 21-24); and

directing, within said stream of liquid (12), said laser radiation such that said radiation is being guided throughout said stream and the liquid serves as a flowing liquid wave guide for the radiation along the longitudinal trajectory of the stream using total internal reflection (see Col. 3 lines 37-44, Col. 4 lines 1-25 and Col. 5 lines 19-25, particularly Col. 3 lines 37-44 and Col. 4 lines 12-25),

in order to contain the radiation within the fluid and utilize the fluid as a flowing liquid wave guide for the radiation so as to deliver the radiation to a particular location desired for radiation treatment (see Col. 4 lines 18-22).

Schneider ('804) also discloses a method for photochemical treatment, the method comprising:

providing a stream of liquid (2) (see entire document, particularly Figures 1-3 and 5) wherein said liquid has a refractive index greater than a refractive index of the surrounding (see entire document, particularly Col. 2, lines 61-67 and Col. 3, lines 19-23

wherein the occurrence of total internal reflection within the liquid of the radiation indicates that the liquid possesses a higher refractive index than the surrounding); and

directing UV-radiation (see Col. 2, lines 31-32) within said stream of liquid to disinfect the liquid such that the liquid serves as a flowing liquid wave guide for the radiation along the longitudinal trajectory of the stream using total internal reflection of the UV radiation (see entire document, particularly Col. 2, lines 22-28, 61-67 and Col. 3, lines 19-27),

in order to avoid hazards due to unintentional directing of the laser ray onto living organisms or "overshooting" (see Col. 3 lines 19-24).

It would have been obvious to one of ordinary skill in this art at the time of invention to provide such a configuration wherein the liquid stream has a refractive index greater than a refractive index of the surrounding of the stream of liquid in the method of Baca in order to contain the radiation within the fluid stream along the longitudinal trajectory of the liquid stream so as to avoid dangers of the radiation being applied to unintended object or material when the radiation is emitted beyond the location where the radiation is first introduced into the water as shown by Neuberger and Schneider.

As to Claim 4, Baca ('271) discloses that said UV-radiation is generated by a laser source (see entire document, particularly Abstract, p.3 [0030] and p. 4 [0041]).

Schneider ('804) also discloses that said UV-radiation is generated by a laser source (see entire document, particularly Col. 2, lines 59-60 and Col. 3, lines 69-71).

As to Claim 17, Baca ('271) discloses that the UV radiation is utilized is UVA-, UVB- or UVC-radiation (see entire document, particularly p. 2 [0027]).

As to Claim 18, Baca ('271) discloses that the liquid is water (see Abstract).

Neuberger ('148) also discloses that the liquid is water (see Col. 4 lines 7-9).

Schneider ('804) also discloses that the liquid is water (see entire document, particularly Col. 3, line 24 and Col. 4, line 26).

Thus, Claims 1, 4 and 16-18 would have been obvious within the meaning of 35 U.S.C. 103(a) over the combined teachings of Baca ('271), Neuberger ('148) and Schneider ('804).

Response to Arguments

4. Applicant's arguments filed 6/17/2010 have been fully considered but they are not persuasive.

As to Applicant's argument in regards to Baca at the end of p. 6 of the Remarks, Examiner would point out that this is an argument against the references individually, where one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed.

Cir. 1986). Specifically, the secondary references of Neuberger and Schneider teaches the argued limitations which were added by an amendment to the claim 1.

As to Applicant's argument in the first paragraph on p. 7 of Remarks in regards to Neuberger, Examiner would point out that this is an argument against the references individually, where one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Specifically, Examiner would note that Baca has already taught the limitation regarding the use of UV-radiation for disinfection.

As to Applicant's argument in regards to Schneider in the second paragraph on p. 7 of Remarks, Examiner would also point out that this is an argument against the references individually, where one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Specifically, Examiner would again note that Baca has already taught the limitation regarding the use of UV-radiation for disinfection.

As to Applicant's arguments in the third paragraph to fifth paragraph on p. 7 of Remarks, Examiner would note that as Schneider teaches "well-known phenomenon of a liquid guide or total internal reflection" (see last paragraph on p. 7 of Remarks) using a liquid stream and a radiation source to provide the radiation at a secondary location so as to avoid emitting the radiation onto any other unintended location, it would have been

obvious to one of ordinary skill in the art at the time of the invention to utilize total internal reflection to deliver appropriate UV-radiation to a secondary location to disinfect the secondary location, such as a treatment area within a patient's mouth (see Baca p. 4 [0043]), without losing any of the radiation to the surroundings, as well as to have disinfected the liquid (see Baca pp. 4-5 [0043]).

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to REGINA YOO whose telephone number is (571)272-6690. The examiner can normally be reached on Monday-Friday, 10:00 am - 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elizabeth L McKane/
Primary Examiner, Art Unit 1797

RY